

REPLACEMENT CLAIMS

1. (Amended) A method of forming a plurality of dopant pockets on a substrate comprising:

forming a plurality of implantable regions on said substrate separated by field oxide regions, said implantable regions and field oxide regions extending in a first direction;

A1 forming a plurality of word lines located over said implantable regions and field oxide regions, said word lines extending in a second direction perpendicular to said first direction;

removing portions of said field oxide regions between two adjacent word lines to expose respective substrate regions;

forming source regions in said implantable regions; and

subsequently implanting a dopant into said substrate through said respective substrate regions to form said dopant pockets beneath said source regions.

A2 9. (Amended) The method of claim 1, wherein said act of implanting said dopant is carried out with an implanting energy higher than implanting energy used to form said source regions.

pub 01 A3 12. (Amended) A method of forming a plurality of dopant pockets on a substrate comprising:

forming a plurality of implantable regions on said substrate separated by field oxide regions, said implantable regions and field oxide regions extending in a first direction;

forming a plurality of word lines located over said implantable regions and field oxide regions, said word lines extending in a second direction perpendicular to said first direction;

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removing portions of said field oxide regions between two adjacent word lines to expose respective substrate regions;

forming source regions in said implantable regions; and

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implanting a dopant into said substrate through said respective substrate regions to form said dopant pockets beneath said source regions, wherein said act of implanting said dopant into said substrate is carried out before said act of forming said source regions.

13. (Amended) A method of forming source regions with boron pockets on a substrate of a flash memory, said method comprising:

forming a field oxide layer over said substrate;

forming a pair of adjacent spaced word lines over said field oxide layer;

removing said field oxide layer from predefined regions located in between said spaced word lines to expose respective substrate regions;

forming a source region in between said word lines; and

subsequently implanting boron into said substrate in between said word lines to form a boron pocket beneath said source region.

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16. (Amended) The method of claim 13, wherein said act of implanting boron is carried out at with an implanting energy higher than an implanting energy for said source region.

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19. (Amended) A method of forming source regions with boron pockets on a substrate of a flash memory, said method comprising:

forming a field oxide layer over said substrate;

forming a pair of adjacent spaced word lines over said field oxide layer;

removing said field oxide layer from predefined regions located in between said spaced word lines to expose respective substrate regions;

forming a source region in between said word lines; and

implanting boron into said substrate in between said word lines to form a boron pocket beneath said source region, wherein the act of implanting boron into said substrate is carried out before said act of forming said source region.

20. (Amended) A method of forming a source region in a substrate comprising:

forming a pair of gate structures which extend in a first direction over a substrate;

altering the upper surface profile of said substrate to form alternating areas of higher substrate surface elevation and areas of lower substrate surface elevation along said first direction and between said pair of gate structures;

providing a first doped layer in said substrate between said gate structures which has a profile which follows that of said upper surface profile; and

providing a second doped layer in said substrate between said gate structure which is below said first doped layer and which has a profile which follows that of said first doped layer, wherein said act of providing said second doped layer is carried out with an implanting energy higher than an implanting energy for said first doped layer.

24. (Amended) A method of forming a source region in a substrate comprising:

forming a pair of gate structures which extend in a first direction over a substrate;

altering the upper surface profile of said substrate to form alternating areas of higher substrate surface elevation and areas of lower substrate surface elevation along said first direction and between said pair of gate structures;

providing a first doped layer in said substrate between said gate structures which has a profile which follows that of said upper surface profile; and

providing a second doped layer in said substrate between said gate structure which is below said first doped layer and which has a profile which follows that of said first doped layer, wherein said act of providing said second doped layer is carried out with an implanting energy higher than an implanting energy for said first doped layer and wherein said second doped layer is provided in said substrate before said first doped layer.